

ABSTRACT

Single Photon Emission Computed Tomography (SPECT) is one of the medical imaging modalities in nuclear medicine. SPECT can produce an image by capturing the distribution of radiation from gamma photons emitted by a patient who has ingested or been injected with a radionuclide. To ensure the modality's performance meets technical specifications, acceptance testing must be performed. One important acceptance test parameter for evaluating the performance of a detector system is testing the acceptable count rate of the detector. The parameter used for this test is the Intrinsic Count Rate Performance (ICRP). ICRP testing ICRP can be performed using several methods. In this study, the test was performed using the maximum count rate method with a source distance ranging from 8 to 16 cm and a Tc-99m activity of 199 μ Ci. This study shows that the maximum count rate occurs at a distance of 11 cm for both detectors. Each detector has a maximum count rate of 441.24 kcps and 435.84 kcps, respectively. This indicates that both detectors meet the NEMA technical specifications, namely a count rate >400 kcps.

Keywords : *Single Photon Emission Computed Tomography (SPECT), nuclear medicine, intrinsic count rate performance (ICRP), maximum count rate*